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EXAMINER

HANDLING	ART UNIT	PAPER NUMBER
	21	2878

DATE MAILED: 10/15/96

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

This application has been examined Responsive to communication filed on 5/27/96 This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), _____ days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. Notice of References Cited by Examiner, PTO-892.
2. Notice of Draftsman's Patent Drawing Review, PTO-948.
3. Notice of Art Cited by Applicant, PTO-1449.
4. Notice of Informal Patent Application, PTO-152.
5. Information on How to Effect Drawing Changes, PTO-1474.
6. _____

Part II SUMMARY OF ACTION

1. Claims 1-24 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. Claims _____ have been cancelled.
3. Claims 24 are allowed.
4. Claims 1-23 are rejected.
5. Claims _____ are objected to.
6. Claims _____ are subject to restriction or election requirement.
7. This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. Formal drawings are required in response to this Office action.
9. The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are acceptable; not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).
10. The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been approved by the examiner; disapproved by the examiner (see explanation).
11. The proposed drawing correction, filed _____, has been approved; disapproved (see explanation).
12. Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has been received not been received been filed in parent application, serial no. _____; filed on _____.
13. Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. Other

EXAMINER'S ACTION

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barnes et al (Nature, vol. 372, 11/3/94 p.79) and Halsor et al (3896309) in view of Barker (3415712) and Burns et al (5550516). Barnes et al show the microcantilever sensor that senses radiation indirectly by the heating effects (see page 80 col. 2). Their readout system is an optical deflection of light, but they also imply that other parameters can be used to indicate the bending. They cite an example from the field of force microscopy, where a change in tunneling current can be sensed. Halsor et al shows the same inventive concept and discusses a multiwavelength radiation detector; their readout system uses the measurement of surface conductivity as an indicator of radiation. These references do not show the measurement of capacitance or a mechanical or resonating frequency as an indicator of radiation, but Barker uses the measurement of capacitance (see fig. 5) and Burns et al show using a resonating frequency measurement (col. 10, line 30) as indicators of how much a bimetallic strip bends due to some external influence. The actual source of the bending is not important in these two references. It would have been obvious to one of ordinary skill in the art to use different readout systems such as in Barker or Burns et al in the sensor of Barnes et al or Halsor et al depending on the

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sensitivity needed or as an obvious design choice to solve a specific problem. There are many ways to readout and correlate the bending of a bimetallic strip to some physical quantity of the system being measured and one skilled in the art would know these techniques.

3. Claim 24 is allowed (see paper # 17 for examiner's reasons for allowance).
4. In regards to applicant's arguments that Barnes et al do not measure radiation, they have to calibrate their system, so inherently they have to measure the bending of their cantilever under the effects of radiation alone without any substance on the cantilever in order to characterize the effects of the radiation on their system in order to acquire a baseline measurement. The reference Halsor et al also measures radiation and this is unambiguous. The applicant has argued that Barnes et al and Halsor et al are non-analogous art and therefore can not be combined. The two references were not combined as such, they were two examples of the cantilever principle that had different readouts and both were used to show the many different readout parameters that could be measured. The reference Barker disclose that it is obvious to use capacitance to measure bending of a cantilever sensor, it doesn't matter the source of the bending (thermal or radiation), one skilled in the art would know that this is a very sensitive way of measuring bending and would immediately use it in their system. The reference Burns et al show another way of measuring the bending of a cantilever sensor and as in Barker, the source

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of the bending (radiation or thermal) doesn't matter, since the measurement of radiation or thermal stimuli are often times interchangeable .

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to R. Hanig whose telephone number is (703) 308-4853; or the receptionist (703) 308-0956. Fax No. (703) 308-7722.

RH
October 13, 1998

Edward Westin

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